LubeFusion
lubricant solutions at work

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HEAT TRANSFER OILS (HTO)
22, 32, 68 & 100

DESCRIPTION

Heat Transfer Oils (HTO) 22, 32, 68 & 100 are blended with highly refined base oils and proprietary ash-less (calcium free) anti-wear additives used in enclosed circulating systems for the transfer of heat. They have good oxidation and thermal stability even without the use of anti-oxidants. They exhibit high oxidation resistance at high operating temperatures and low pour point which makes them suitable for outdoor and low temperature uses.

APPLICATIONS

- Recommended for use in all heat transfer operations where ash-less additives are required.
- HTO 22 and 32 are recommended for use as general purpose lubricants in equipment operating under lightly loaded or wasteful conditions e.g. as a flushing oil for cleaning out circulating systems and oil reservoirs during oil change-over procedures typical application include conveyers, chairs and outdoor machinery.
- HTO's can also be used as heat exchanging medium in closed systems operating at temperatures up to 300°C. Heat sources should apply heat gradually while oil is circulating to avoid local overheating, oil cracking and cooking of the heater elements.
- HTO's are suitable for quenching of large numbers of smaller steel parts in a given time. They provide a slow to moderate quenching rate which results in sufficient hardness without the danger of cracking the material.
- Also suitable for use in turbine and rotary and reciprocating compressor applications

PERFORMANCE

Meets or exceeds:

- ISO 6743-12 FAMILY Q
- MEETS TYPICALLY DIN 51522 REQUIREMENTS

ADVANTAGES

- Ash less additives ensure no scale built up within the system
- Good oxidation and thermal stability
- HTO 22, 32 and 68 are especially suitable for quenching of large numbers of smaller steel ports in a given line. They provide a slow to moderate rate which results in sufficient hardness without the danger of cracking the materials
- Low lubricant cost in wasteful conditions
- Water tolerance / Excellent separation from water (IP19 and D1401)
- Excellent rust control even after water wash
- Multi-metal compatibility
- Resistance to sludge formation / Filterability
- Compatible with a wide range of industrial fluids
- Good air entrainment properties

TYPICAL PHYSICAL CHARACTERISTICS

Property	Unit	HTO 22	HTO 32	HTO 68	HTO 100	Method
Appearance		Clear to Yellowish Fluid	Clear to Yellowish Fluid	Clear to Yellowish Fluid	Clear to Yellowish Fluid	Visual
Density @ 20°C		0.864	0.869	0.88	0.88	ASTM D1298
Viscosity @ 40°C	cSt	20-24	30-34	61-74	98-105	ASTM D 445
Viscosity Index	VI	97	95	95	98	ASTM D 445
Pour Point	°C	-15	-12	-10	-10	ASTM D93
OTHER TYPICAL PROPERTIES OF THE HTO's						
Thermo-Oxidative Stability						
TOST 95˚C,H_2O,O_2,Fe & Cu catalyst) Sludge			Mg	11		ASTM D4310
TAN			MgKOH/gm	0.06		
TOST 95˚C,H_2O,O_2,Fe & Cu catalyst) Time to TAN 2mgKOH/g			Hours	>14 000		ASTM D943
RBOT (150˚C,H_2O,O_2,Cu catalyst) Life time			Minutes	1410		ASTM D 2272
Cigre (164 h/120˚C/soluble Fe & Cu cat./1/O_2 per hour)						IP 280
TOP(Total oxidation products)			%	0.05		
Sludge			%	0.04		
Cincinnati Milacron (164h/135˚C/Fe & Cu cat. Viscosity change						Proc. A
Neutralisation number change			%	<5		
Sludge			%	-9		
Cu rod appearance			Mg/100ml	10.1		
Fe rod appearance			rating	3.0		
			rating	1		
Hydrolytic Stability						
Beverage Bottle Method						ASTM D 2619
Cu loss			Mg/cm²	0		
Acidity of H_2O layer			MgKOH/25g	0.95		
TAN in oil: 0h/48h			MgKOH/g	0.07/0.05		
Insoluble content			%	None		
Appearance of Cu strip						ASTM D 130
Surface Characteristics						
Air release properties/ 50˚C			Minutes	3.0		DIN 51381
H2O Separation ability after stream treatment			S	135		DIN 51589 p.1
Demulsibility capacity/ 54˚C			Ml	41-39-0		ASTM D

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Oil-water separation time	Minutes	5	1401
Foaming behaviour surface foam Seq. I 25˚C Seq. II 95˚C Seq. III 25˚C		 0/0 0/0 0/0	ASTM D 1401
Corrosion protection			
Cu corrosion 3h/100˚C 24h/100˚C	 Rating Rating	 1a 1b-2a	ASTM D 130
Steel corrosion Procedure A (distilled water) Procedure A (synthetic sea water)	 Rating Rating	 Pass 0 Pass 0	ASTM D 665
EP/AW Properties			
AW- 4ball test Scar diameter 1500 rpm/ 1h/300N 1800 rpm/ 1h/ 200 N	 mm	 Typical 0.47 Max .51	DIN 51350, part 3 ASTM D 4172
FZG gear test A 8.3/ 90-Visual Damage load stage	Rating	 11	DIN 51354 part 2

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